

Application Serial No. 10/694,140
Reply to Office Action of February 23, 2006

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Amendments to the Claims

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1-17. (cancelled)

18. (original) A sleeve forming apparatus for forming a sheet-like blank into a sleeve used as an outer package of a heat-insulating container, comprising:

a mandrel having a body portion which is capable of being fitted inside the sleeve and which is shorter than the sleeve;

a curling device for curling up a blank on the mandrel in such a manner that one end portion of the blank to which an adhesive agent is applied is located under another end portion of the blank to form a joint line;

a main-sealing device for pressing the joint line onto the mandrel;

an assist-sealing device for nipping one end portion of the joint line, which projects from the mandrel by a pair of nippers;

an end-curling device for pressing a projecting portion of the blank, which projects from the mandrel, toward the mandrel to form a curled portion of the sleeve; and

a sleeve-ejecting device for removing the sleeve from the mandrel.

19. (original) A sleeve forming apparatus according to claim 18, further comprising a blank-supplying device for supplying the blank to the curling device with applying the adhesive agent to the one end of the blank.

20. (original) A sleeve forming apparatus according to claim 18, further comprising:

a conveyor capable of circulating along a predetermined circulation path and having mandrel-attachment portions arranged along the circulation path with leaving a certain interval therebetween, each of the attachment portions being provided with the mandrel; and

a driving device for moving the conveyor intermittently by a pitch corresponding to the interval between the mandrel-attachment portions to feed the

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mandrel on each of the mandrel-attachment portions step by step with respect to a plurality of stations defined along the circulation path;

wherein the curling device, the assist-sealing device, the end-curling device and the sleeve-ejecting device are distributed to the stations in such a manner that the mandrel is fed to the curling device, the assist-sealing device, the end-curling device and the sleeve-ejecting in this described order in accordance with movements of the conveyor.

21. (original) A sleeve forming apparatus according to claim 20, wherein the main-sealing device is movable along the circulation path together with the mandrel.

22. (currently amended) A sleeve forming apparatus for forming a sheet-like blank into a sleeve used as an outer package of a heat-insulating container, comprising:

a conveyor capable of circulating along a predetermined circulation path; a plurality of mandrels arranged on the conveyor so as to leave a certain interval therebetween in a circulation direction of the conveyor;

a driving device for moving the conveyor intermittently by a pitch corresponding to the interval between the mandrels to feed each of the mandrel step by step with respect to stations defined along the circulation path;

a blank-supplying device for supplying the blank to a curling station selected from the stations with applying an adhesive agent to one end portion of the blank;

a curling device for curling up the supplied blank on each of the mandrels in such a manner that said one end portion of the blank is located under another end portion thereof to form a joint line;

a sealing device for pressing both end portions of the blank, which forms the joint line, to each other; and

a sleeve-ejecting device provided in an ejecting station which is selected from the stations and is located forward from the curling station in the circulation direction for removing the sleeve from each of the mandrels;

wherein each of the mandrels has a body portion which is capable of being fitted inside the sleeve and which is shorter than the sleeve, and wherein the sealing device comprises a main-sealing device for pressing the joint line of the blank to each of the mandrels and an assist-sealing device for nipping one end portion of the

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joint line, which projects from each of the mandrels, by a pair of nippers.

23. (cancelled)

24. (currently amended) A sleeve forming apparatus according to ~~claim 23~~ claim 22, wherein the assist-sealing device is provided in an assist-sealing station selected from the stations and located between the curling station and the ejecting station.

25. (original) A sleeve forming apparatus according to claim 24, wherein an end-curling device for processing an curled portion on a projecting portion of the blank, which projects from each of the mandrels, is provided in at least one end-curling station selected from the stations and located between the assist-sealing station and the ejecting station.

26. (original) A sleeve forming apparatus according to claim 20 or 25, wherein the stations include at least two end-curling stations, each of which is provided with the end-curling device.

27. (original) A sleeve forming apparatus according to claim 18 or 22, wherein the sleeve-ejecting device removes the sleeve from each of the mandrels by pressing a roller onto the sleeve fitted on each mandrel with rotating the roller about an axis perpendicular to an axis of each mandrel.

28. (currently amended) A sleeve forming apparatus according to ~~any one of claims 18 to 27~~ claim 20 or 22, wherein the conveyor comprises a turn table capable of turning about a predetermined axis.

29-36. (cancelled)

37. (withdrawn) A rib-processing apparatus for processing a rib on a side wall of a cup body so as to extend in a circumferential direction of the side wall comprising: a male and a female model members disposed opposite to each other with putting the side wall therebetween, the male model member being provided on a portion facing

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the female model member with a projection to form a concave side of the rib, and the female model member being provided on a portion facing the male model member with a groove to form a convex side of the rib; a radial direction driving device for moving at least one of the male and the female model members in a radial direction of the cup body so as to let the male and the female model members close to and away from each other; a circumferential direction driving device for making a relative rotation between the cup body and at least one of the male and the female model members to change a position at which the side wall is nipped between the male and the female model members in the circumferential direction.

38. (withdrawn) A rib-processing apparatus according to claim 37, further comprising a cup holder capable of rotating about an axis thereof with supporting the cup body from an inside thereof, wherein the cup holder is provided with one of the male and the female model members, another one of the male and the female model members is disposed on an outer periphery of the cup body, the radial direction driving device moves said another one of the male and the female model members in the radial direction of the cup body, and the circumferential direction driving device rotates the cup holder.

39. (withdrawn) A rib-processing apparatus according to claim 38, wherein said one of the male and the female model members provided on the cup body extends continuously over an entire periphery of the side wall of the cup body.

40. (withdrawn) A rib-processing apparatus according to claim 38, wherein a roller rotatable about an axis parallel to an axis of the cup body is provided as said another one of the male and the female model members disposed on the outer periphery of the cup body.

41. (withdrawn) A rib-processing apparatus according to claim 38, further comprising a restraining device for preventing the cup body from rising up from the cup holder.

42. (withdrawn) A rib-processing apparatus according to any one of claims 37 to 41, wherein the male model member is provided inside the cup body, and the female

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model member is provided outside the cup body.

43. (withdrawn) A rib-processing apparatus for processing a rib on a side wall of a cup body so as to extend in a circumferential direction of the side wall comprising: a cup holder capable of rotating about an axis of the cup body with holding the cup body from an inside thereof; a rotary drive mechanism for rotating the cup holder; and a press mechanism which is provided on one side of the cup holder and which has a press roller rotatable about an axis parallel to the axis of the cup body and a driving power source for moving the press roller reciprocally in a radial direction of the cup body, wherein one of a groove for forming a convex side of the rib and a projection for forming a concave side of the rib is provided on an outer periphery of the press roller, and another one of the groove and the projection is provided on the cup holder so as to accord a position thereof in a direction parallel to the axis of the cup holder with a position of said one of the groove and the projection provided on the press roller.

44. (withdrawn) A rib-processing apparatus according to claim 43, further comprising a conveyor for conveying the cup holder through a plurality of processes, wherein the rotary driving mechanism and the press mechanism are provided intermediate positions of a conveying path of the conveyor.

45. (withdrawn) A process for forming a rib on a side wall of a cup body so as to extend in a circumferential direction of the cup body, comprising by the steps of: nipping one part of the side wall of the cup body by a male and a female model members, the male model member being provided on a portion facing the female model member with a projection to form a concave side of the rib, and the female, model member being provided on a portion facing the male model member with a groove to form a convex side of the rib; and making a relative rotation between the cup body and at least one of the male and the female model members to change a position, at which the side wall is nipped between the male and the female model members in the circumferential direction of the side wall.

46. (withdrawn) A process according to claim 45, wherein the cup body is held from

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an inside thereof by an cup holder capable of rotating about an axis of the cup body, the cup holder is provided with one of the male and the female model members, another one of the male and the female model members is pressed on a side wall from an outside thereof to nip the side wall between the male and the female model members, and under this condition, the cup holder is rotated.

47. (withdrawn) A process according to claim 45, wherein a bottom of the cup body is pressed down to the cup holder when the side wall is nipped by the male and the female model members.

48. (withdrawn) A process according to any one of claims 45 to 47, wherein the male model member is disposed inside the cup body, and the female model member is disposed outside the cup body.